

Groundwork Erie Research Proposal

Introduction: Mill Creek is a 19-mile long tributary of Lake Erie that flows from the township of Millcreek, through the city of Erie, and then eventually into Presque Isle Bay. After an intense flood in 1915, the Mill Creek Tube was built between 1917 and 1923 to prevent another flooding like such. The Tube is a 22-foot wide, 19 foot tall, and 12, 280 foot long concrete tube that goes under downtown city. It starts at the southern side of West 30th Street and comes back up on the norther side of the Bayfront Parkway. The main preventative measure to prevent debris or other garbage coming into the tube is situated a mile upstream from the start of it, which is a drift catcher. While it goes under downtown Erie, the tunnel collects runoff from street curbs on the surface, which increases the volume of the water that it carries. While the structure is great to prevent any flooding, the water is not treated before it is dumped into Lake Erie. Since there is not treatment done on it, many toxins and garbage is dumping into the lake. This study's purpose is to test water quality in different locations of Mill Creek.

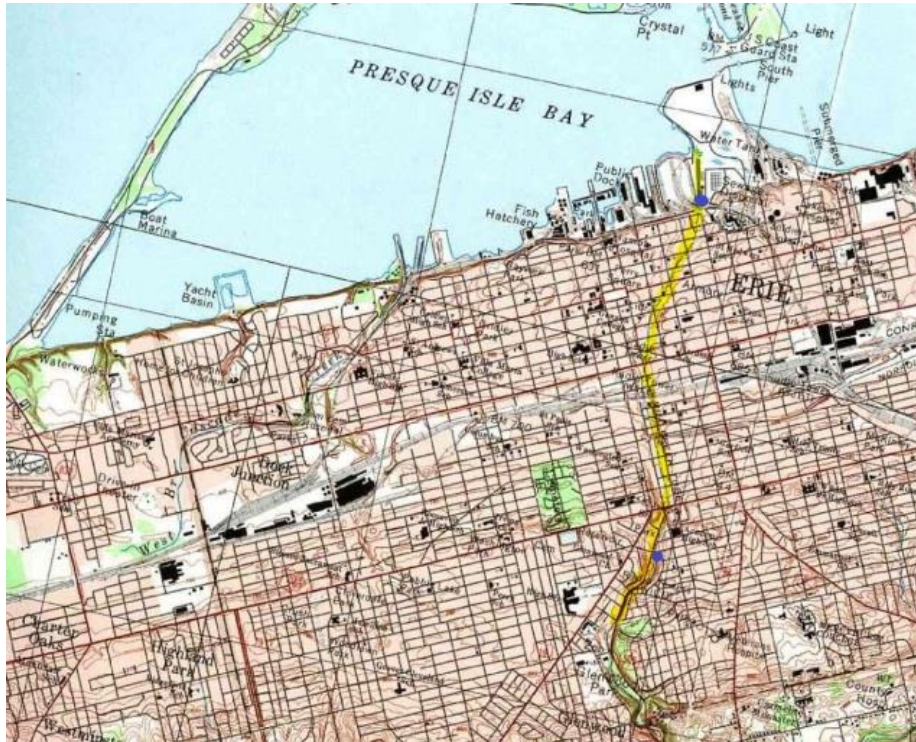


Figure 1. Map of Mill Creek Tube

Research Questions:

1. Is there a relationship between the further downstream, the more pollutants?
2. Is there more pollutants seen before or after the tube begins?
3. Are the streams that are not connected to the tube polluted in the same way?
4. Is there higher concentrations of pollutants after a rainstorm?

Methodology: The study will take samples in four different locations—before the tube starts, where the tube opens up but before it is dumped into Lake Erie, Lake Erie, and upstream from a different stream. A control group will also be run with distilled water.

Data Analysis: The results from this study will allow analysis of the tube, and to see if there is a correlation between going further downstream (deeper into downtown Erie) and increasing pollutants.